



National Park Service  
U.S. Department of the Interior

*Vital Signs are a subset of physical, chemical, and biological elements and processes of park ecosystems selected to represent the overall health or condition of park resources.*



For more information visit our website at:  
<http://www.nature.nps.gov/im/units/ucbn/>

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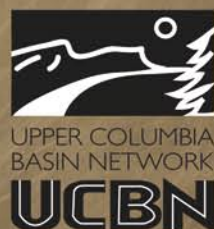


UPPER COLUMBIA BASIN  
NETWORK PARK UNITS  
Big Hole National Battlefield  
City of Rocks National Reserve  
Craters of the Moon National  
Monument and Preserve  
Hagerman Fossil Beds National  
Monument  
John Day Fossil Beds National  
Monument  
Lake Roosevelt National  
Recreation Area  
Minidoka Internment National  
Monument  
Nez Perce National Historical  
Park  
Whitman Mission National  
Historic Site

## Upper Columbia Basin Network

# Inventory & Monitoring Program

*Providing long-term monitoring  
of natural resources*



### NPS Inventory and Monitoring

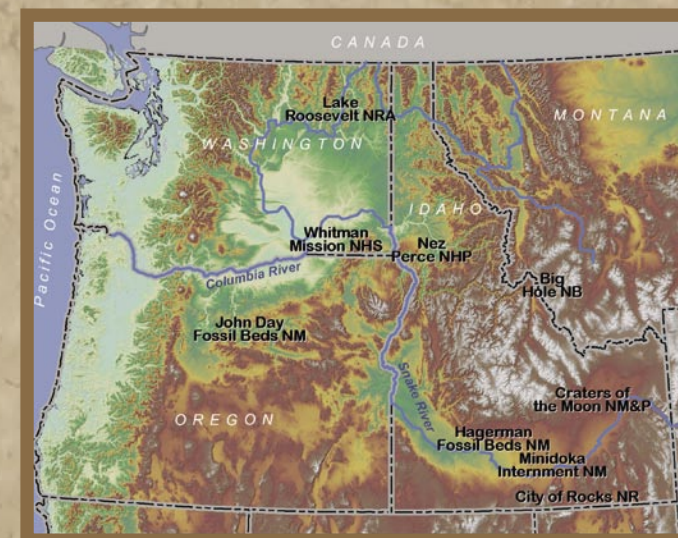
Managers need reliable data to maintain resources “unimpaired for future generations,” especially as conditions outside the parks rapidly change. To address information gaps and facilitate proactive resource management, NPS has established a servicewide Vital Signs Inventory and Monitoring Program, composed of 32 “networks” of parks grouped by proximity and ecological similarity.

#### The national initiative covers five key elements:

- baseline inventories of biological and geophysical natural resources
- long-term ecological monitoring programs
- digital geographic information that documents distribution of natural resources
- integration of inventory and monitoring programs into park management decisions
- cooperation with neighboring agencies to manage resources on a larger scale

### The Upper Columbia Basin Network (UCBN)

The nine parks in the UCBN are spread across four states and occupy portions of the Columbia Plateau and Snake River Plain geographic regions.



UCBN parks share many similar natural resource threats and issues. The most fundamental is the profound alteration and disturbance of their landscapes. Land use change, habitat alteration, and fragmentation are some of the most important sources of resource stress. Network parks are constantly beset by invasions of exotic plants, suffer from water and air quality problems on adjacent lands and experience visual and noise impacts adjacent to the units. These factors disrupt the cultural setting many of the parks seek to portray.

Many plants and animals that occur in UCBN parks are unique to the semi-arid habitats of the upper Columbia Basin. This list includes greater sage grouse, spotted bat, Columbia spotted frog, and hedgehog cactus. In addition, parks in the UCBN contain the only pinyon pine woodland in Idaho, substantial expanses of native sagebrush-steppe habitat and one of the last strongholds of the arctic grayling south of Canada.



# Upper Columbia Basin Network Inventory & Monitoring Program

## Focal Systems

The UCBN science advisory committee has identified five focal systems upon which the monitoring program is based. These systems are defined primarily by land cover and encompass the suite of significant ecological resources of concern and from which measurable information-rich vital signs have been chosen.



**Sagebrush-steppe ecosystems**, the most widely distributed ecosystem type within the network parks, is dominated by one or more of the big sagebrush species in association with perennial bunchgrasses and forbs.



**Forest and woodland ecosystems** that occur in the UCBN include mixed fir and pine forest, ponderosa pine forest, limber pine woodland, pinyon-juniper woodland, aspen groves, and riparian cottonwood galleries.



**Cultural landscapes** contain both cultural and natural resources, are associated with a historic event, activity, or person and represent a critical component of park mission and visitor experience.



**Riparian ecosystems**, although small in extent, are disproportionately important to the biological diversity and ecological processes of the UCBN, such as water retention and nutrient cycling.



**Aquatic ecosystems**, both lotic (running water) and lentic (lake and pond) aquatic habitats are represented and, like the riparian and wetland habitats they support, are very important to the overall structure and function of network ecosystems.

## Vital Signs

### PRIORITIZATION

The complex task of developing a network monitoring program required a front-end investment in planning and design to ensure that monitoring will meet the most critical information needs of each park and produce scientifically credible data that are accessible to managers and researchers in a timely manner. Through regional and park-based workshops, involving scientists and researchers from various disciplines, the prioritization process provided objective identification and ranking of ecosystem vital signs that are the focus of long-term monitoring.

### SELECTION

In May 2005 the UCBN science advisory committee and board of directors approved the selection of thirteen vital signs for monitoring.

- invasive plants
- sagebrush-steppe vegetation
- land cover and use
- riparian vegetation communities
- stream/river channel characteristics
- surface water dynamics
- water quality/ macroinvertebrates
- aspen
- osprey
- bat communities
- limber pine
- camas lily
- sage grouse

### IMPLEMENTATION

Protocol development for selected vital signs is ongoing. The final monitoring plan is due in October 2006 and monitoring will begin in the summer of 2007.

## Partnerships and Citizen Scientists

The UCBN staff is committed to complementing existing and fostering new regional collaborations that will benefit natural resource management within network parks. Monitoring efforts by agencies other than NPS, may provide opportunities for partnership.

Outreach and education are integral to the UCBN's vision of a long-term monitoring strategy. To this end, volunteers have played, and will continue to play, a key role. For example, the Oregon Museum of Science and Industry (OMSI) provided student and staff volunteers as well as housing in exchange for Network-staffed educational programs. Most recently, OSI and UCBN teamed up to offer high school students the opportunity to study bats, aspen and camas populations.



## State-of-the-Art Science

Today's state-of-the-art information technology (IT) has the ability to increase productivity of researchers and managers in the field.

Given the large expanse of area under management and relatively limited budgets, the UCBN is taking IT to the field in support of the natural resource I & M program. Successfully planning and implementing IT in the field allows staff to accomplish more for less. For example, using global positioning systems (GPS) with personal data assistants (handheld computers) for mapping vegetation and collecting data on species of concern has virtually eliminated the need for field data forms and pencils.

This program combines innovative sampling techniques, rigorous protocols, and quantifiable results into a leading-edge effort that sets the stage for long-term monitoring.